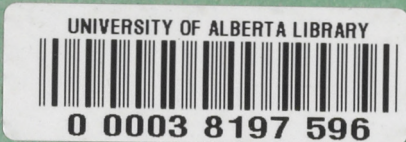


1953/54

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ANNUAL REPORT

ONE WEEK LOAN

OF THE

GENERAL SCIENCES

EASTERN ROCKIES FOREST
CONSERVATION BOARD

FOR THE
FISCAL YEAR
1953 - 54

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1953/54

CALGARY, ALBERTA
MARCH 31st, 1954

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ANNUAL REPORT

of the

Calgary, Alberta,
June 28th, 1954.

EASTERN ROCKIES FOREST CONSERVATION BOARD

To

The Honourable Jean Lesage
Minister of Northern Affairs
and National Resources,
Ottawa, Ontario.

for the

Sir:

FISCAL YEAR

1953-54

I have the honour to submit herewith the
Annual Report of the Eastern Rockies Forest Conserva-
tion Board for the fiscal year April 1st, 1953 - March
31st, 1954, pursuant to the provisions of the Eastern
Rocky Mountain Forest Conservation Act of 1947. I am

Your obedient servant,

Howard Kennedy,
Chairman.

Calgary, Alberta

March 31st, 1954

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EASTERN ROCKIES FOREST CONSERVATION BOARD

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EASTERN ROCKIES FOREST CONSERVATION BOARD

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June 28th, 1954.

To

The Honourable Ivan Casey,
Minister of Lands and Forests,
Edmonton, Alberta.

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* * * * *

REPORT OF BOARD MEMBERS

PERSONNEL

As the period of the Board's activities of Federal funds allotted to the Board (\$6,100,000) ends with the fiscal year 1954-55 it seems appropriate to not only give a résumé of the work accomplished during the year 1953-54, but also to recount something of its overall achievements since its creation.

In any consideration of the work of the Board it is necessary to keep in mind that it construes its major duty in mind. Forests, and grazing lands therefore, are Howard Kennedy, C.B.E., M.C., B.Sc. - Chairman of the Board

George Tunstell, B.Sc.F. - Dominion Member of the Board

H.G. Jensen, LL.B. - Alberta Member of the Board

J.M. Marshall - Secretary

E.S. Fellows, M.Sc.F. - Chief Forester

C.R. Cornish, B.A.Sc., P.Eng. - Chief Engineer

with the least possible delay and through patrols of the Reserve, concentration of camping activities in reasonably safe locations, and other means to administer the Reserve in such manner as to reduce the occurrence of fires. It also permits effective administration of grazing and lumbering operations within the Reserve and provides improved facilities for the removal of the logs or other products concerned. Another important phase of the road system's benefits arises from the more complete supervision it provides over the activity of fishermen, hunters and trappers within the area.

REPORT OF BOARD MEMBERS

As the period of capital expenditures of Federal funds allotted to the Board (\$6,300,000) ends with the fiscal year 1954-55 it seems appropriate to not only give a resumé of the work accomplished during the year 1953-54, but also to recount something of its overall achievements since its creation.

In any consideration of the work of the Board it is necessary to keep in mind that it construes its major duty that of providing the maximum summer flow of usable water in the Saskatchewan River. All efforts, whether they be related to forestry, grazing or manipulation of the various forms of vegetation within the forest reserves, are taken with the above-mentioned duty in mind. Forests, and grazing lands therefore, are administered with the aim of maintaining, and to some extent, regulating summer flow of the river rather than that of producing maximum amounts of timber from the forested areas or the greatest financial returns from grazing on the grasslands.

The road system is designed to fight forest fires with the least possible delay and through patrols of the Reserve, concentration of camping activities in reasonably safe locations, and other means to administer the Reserve in such manner as to reduce the occurrence of fires. It also permits effective administration of grazing and lumbering operations within the Reserve and provides improved facilities for the removal of the logs or other products concerned. Another important phase of the road system's benefits arises from the more complete supervision it provides over the activity of fishermen, hunters and trappers within the area.

Perusal of the reports of the Chief Engineer and Chief Forester which follow will show the details of the year's work.

CONSTRUCTION The following is a summary statement of construction accomplishments since the commencement of the Board's operations with the fiscal year 1948-49:

(1) Roads.

229 miles of trunk road (20-foot top, gravelled).

185 miles of secondary road (14-foot top, gravelled where necessary).

411 miles of bulldozed trails and service roads.

(2) Buildings,

<u>Type of Building</u>	<u>Built</u>	<u>Improved</u>	<u>Under Construction</u>
Houses (for rangers)	9	3	1
Cottages (for asst. rangers)	9	1	1
Bunk houses	2	0	0
Engine houses (electric plants)	13	0	0
Storehouses	6	1	1
Garages	9	1	1
Lookouts	5	0	2
Implement sheds	1	0	1
Stop-over cabins	2	0	1
Public camp shelters	18	0	0
Barns	1	0	0
All buildings (totals)	<u>75</u>	<u>6</u>	<u>8</u>

In addition to the foregoing buildings, a complete headquarters establishment (consisting of an office building, a three-car garage and workshop, and a storehouse) was erected at Blairmore. These facilities were later sold to the Provincial Government at cost, and the proceeds made available to the Board for further new construction.

(3) Precipitation Gauges.

Some 87 storage precipitation gauges have been erected in representative areas.

(4) Gauging Stations.

12 stations were constructed by the Water Resources Division of the Federal Department of Northern Affairs and National Resources from funds supplied by the Board.

(5) Radio.

A high frequency - frequency modulation radio system connecting superintendents' headquarters, ranger stations and lookouts has been installed. This is tied to the Calgary office of the Department of Lands and Forests.

EQUIPMENT Bulldozers, trucks, fire pumps and hose, motor cars, road graders, farm traction implements, and small tools necessary to carry out efficient protection and administration of the area, have been provided.

FOREST PROTECTION The record of forest fires continues favourable with only six reported during the year with negligible loss.

The following is a summary of number of fires and area burned since the establishment of the Board:

<u>Fiscal Year</u>	<u>No. Fires</u>	<u>Acres Burned</u>	<u>Acres Burned per 1,000,000 ac. of forests</u>
1948-49	12	21	4
1949-50	24	5529	1005
1950-51	5	20	4
1951-52	4	11	2
1952-53	12	8	1
1953-54	6	1	0
Total	63	5590	1016
Average year	10.5	931.7	169.3

According to H. W. Beall in an article entitled "An Outline of Forest Fire Protection Standards" which was published in the Forestry Chronicle (Vol. 25, No. 2, 1949), an acceptable burning loss for this area would be 2,000 acres in a million. It will be observed that losses in all years have been negligible except for 1949-50 and that even in that year the loss was only half of the standard mentioned above.

No serious epidemics of either insects or diseases appear to threaten the forests of the area.

GRAZING AND RANGE CONDITIONS

With the co-operation of the stock associations some adjustments have been made in grazing areas but the number of animals grazed has remained relatively constant. The condition of the ranges generally continues to improve as a result of changes in management practices.

Some concern is felt due to overgrazing by elk at the higher altitudes in the area south of the Highwood

Range and by wild horses in the North Saskatchewan River area (Kootenay Plains) as this may lead to accelerated erosion. Inter-provincial and international measures of control as well as participation by the Parks Branch may be necessary if the elk situation is to be remedied adequately. Road construction in the coming season may assist in getting rid of a considerable proportion of the wild horses in the near future. Inaccessibility by motor transport to the area involved has hampered remedial action to date. The Government of the Province of Alberta has co-operated by taking legislative action to assist the Board in both these instances.

FOREST OPERATIONS

Forest operations within the Forest Reserve administered by the Board have increased considerably over the

years as shown in the following tabulation:

<u>Year</u>	<u>Saw Timber (millions of feet board measure)</u>	<u>Round Timber (millions of lineal feet)</u>
1948-49	23 1/2	4 1/2
1949-50	31 1/4	4
1950-51	33	2
1951-52	36 1/3	4
1952-53	44 1/2	5 3/4
1953-54	46 1/2	2 1/4

Surveys of timber, soil and vegetal cover are now practically complete and need only to be kept up to date.

HYDROLOGY

Study of movement of air masses and their effects at different altitudes are underway and promise to yield very valuable results in that they indicate the areas where action towards storage of water in the soil may be undertaken most effectively.

OTHER COMMERCIAL ACTIVITIES Search for oil continues throughout the area, although there is no large-scale production of oil in the Forest Reserve to date.

SURFACE REVENUES Revenue from surface rights on the area; prior to Board administration, amounted to approximately \$80,000 per year. The roads constructed by the Board have made the area much more accessible and revenue, particularly from timber, has increased substantially. The following figures show amounts received by fiscal years:

1948-49	\$ 131,679
1949-50	171,355
1950-51	237,505
1951-52	261,126
1952-53	467,940
1953-54	353,579

PERSONNEL The first secretary of the Board, Mr. J. D. Middlemass who carried a heavy load in organization and administration in the early days, resigned during the year and his place has been taken, and ably filled, by Mr. J. M. Marshall, formerly an administrative officer with the Federal Forest Service.

The senior clerk of the Board, Miss Jessie Millar who supervised the accounting and stenographic staff of the Board also resigned during the year and her place has been taken by Mrs. B. MacPheat.

The Board gratefully acknowledges the splendid service rendered by Mr. Middlemass and Miss Millar in its formative days and wishes them every success in their new activities. Mr. Marshall and Mrs. MacPheat have

given every evidence of a complete mastery of the work in hand.

The remaining staff of the Board has been practically unchanged and tribute is paid to their cheerful co-operation and industry throughout the year.

ACKNOWLEDGE- MENTS Relations with both the Federal Government and the Government of Alberta and the Department of Lands and Forests in particular have been most cordial and the Board has received the utmost support and co-operation from all concerned.

As the period of capital expenditure draws toward its close and the period of maintenance and administration is reached it is very cheering to observe an increasing tendency for the staff of the Board and that of the Forest Service to draw more closely together and to exhibit the spirit of team play so necessary to the success of an enterprise of this nature.

Howard Kennedy, Chairman,

George Tunstell, Dominion

Member,

H. G. Jensen, Alberta Member.

REPORT OF THE CHIEF ENGINEER

Although substantial progress was made in the construction field the results of the 1953 season fell somewhat short of the high target set for the year. There will be a carry-over of work in both road and building construction which, while not large in itself, will have to be added to the already full programme scheduled for 1954. Plans have been made to complete all capital works by March 31st, 1955.

The main item of construction work continued to be the building of a network of roads to serve most parts of the Reserve area.

During the year under review construction was completed of 45 miles of trunk road, six miles of secondary road, 25 miles of service road to lookout sites and 65 miles of truck trail.

At the completion of the year a total mileage of 825 miles of all types of road had been constructed made up of 229 miles of trunk road, 185 miles of secondary road and 411 miles of service road and truck trail.

The substantial completion in 1953 of one ranger house, two cottages and four garages brought the total of building construction to nine houses, nine cottages, nine garages, 13 engine houses, two bunkhouses, one implement shed and two stop-over cabins. To date wells have also been drilled at 11 locations to supply water for other district headquarters establishments.

Additional building construction included lookouts as described under fire control development in the report of the Chief Forester.

TRUNK ROAD As in previous years and by arrange-
CONSTRUCTION ment with the Department of Lands and
Forests all contract road work was
handled directly by the engineering division of the Board.

In August of 1953 the 53-mile section of trunk road between the Bow River and the Red Deer River was opened to traffic. The Board's portion of this road amounted to 42 miles, the 11-mile access road from the Banff Highway having been built in 1952 by the Department of Highways.

Forty-five miles of grading was done on the section of road contracted to the New West Construction Company north of the Clearwater River. This virtually completed all grading on the North Clearwater Trunk Road between the Clearwater River and the town of Nordegg. Gravel was crushed and applied to some 25 miles of this section.

Bridging requirements on the North Clearwater Trunk Road were considerably heavier than on any other section built to date. It was necessary to construct 26 bridge structures to cross the streams encountered on the 75-mile stretch of road. These include the major crossings of the North Saskatchewan River and the Clearwater, where bridges with overall lengths of 825 feet and 340 feet respectively, were built. On these major spans creosoted piling and caps were used but all other timber requirements were met by use of native spruce cut on the job.

During the winter of 1953-54 right-of-way clearing was carried out on the section of trunk road between the Clearwater River and the Red Deer River which involves 34 miles of new construction. Approximately 29 miles were cleared and burning was completed on 12 of these.

Due to the steady advance in costs since the start of our programme of capital works, funds are not available to continue construction south of the Clearwater River at the standard originally established for this type of road. However, it is hoped to complete an adequate service road through this section in 1954. Construction of the trunk road will then be completed between Coleman in the Crowsnest valley and Nordegg in the valley of the North Saskatchewan River with extensions at a lower standard reaching within a few miles of both the north and south boundaries of the Reserve.

As in the previous winter, a location survey was made immediately ahead of the clearing crews. Despite adverse weather conditions the location was completed between the Clearwater and Red Deer Rivers, a distance of 39 miles.

DAY-LABOUR and **ROAD WORK** Steady progress was made on construction of secondary and service roads and truck trails by day-labour crews under supervision of the Alberta Forest Service. Rented road-building equipment was used on these projects in addition to equipment owned by the Board.

The planned secondary road system was completed by construction of the small gap in the Bow secondary road and by reconstruction of that portion of the Willow Creek Access Road within the Reserve. Good progress was made in building service roads to lookout sites and in bulldozing truck trails to provide emergency access to areas formerly without road communications of any kind.

In the Crowsnest Forest, very considerable improvements were made to the three miles of road from the Willow Creek Ranger Station to the Reserve boundary. This road joins the outside road rebuilt last year as a joint project by

the Board and the Department of Highways.

A truck trail was completed to extend the road system 15 miles up the main Castle River valley beyond the Castle (Castlemount) Ranger Station. The Dutch Creek Truck Trail was extended to reach the heavy stand of timber 10 miles west of the trunk road. Improvements were made to the 6-mile long Lynx Creek Road and a start made on replacing the Castle River Bridge just west of the Castle (Castlemount) Ranger Station.

Service roads were also built in the Crowsnest Forest to the Hailstone Butte and Carbondale lookout sites, distances of six miles and two miles respectively.

In the Bow River Forest three miles of new construction was finished on the Bow secondary road thus completing this connection between the Sheep, Elbow, Jumping Pound and Kananaskis districts. Gravelling was also done of the Elbow-Jumping Pound loop of the road.

The approaches to the Evans Thomas Bridge having washed out as the result of a heavy spring storm, an additional 20-foot span was built to provide a safety factor against recurrence of this trouble.

The service roads to the Raspberry Ridge and Junction Mountain lookout sites were completed and a new road constructed for a distance of 17 miles to the Forget-me-not site.

A truck trail was built up Smith-Dorrien Creek valley to Mud Lake a distance of 14 miles. A contribution was also made by the Board toward the cost of building 18 miles of road from the Spray reservoir to Mud Lake. This section was on our programme as a truck trail but the actual construction was done to a

higher standard by a timber operator for use as a haul road from a timber berth.

A truck trail was constructed from the North Bow Trunk Road to the Harold Creek cabin a distance of 12 miles. The connecting road from the trunk road to the Ghost (Aura) Ranger Station was rebuilt for a distance of one mile.

In the Clearwater Forest the main item of road building, apart from trunk road, was the construction of a connecting road from the North Clearwater Trunk Road to the Meadows Ranger Station and continuing to the old ferry site at Saunders. The distance of 38 miles was virtually completed in the season.

The six miles of road from the Clearwater Ranger Station to the eastern boundary of the Reserve was re-shaped and gravelled. This road is also a connection to the new trunk road.

The old bridge across the Blackstone River on the Chungo Road was replaced by two native timber truss spans.

Improvement work was done, but not completed, on the Windy Point trail along the North Saskatchewan River west of Nordegg.

BUILDING Construction of dwellings and other
CONSTRUCTION buildings progressed in all sections
 of the Reserve under supervision of
the Alberta Forest Service and with considerable use of
ranger labour.

Throughout the Reserve nine wells were drilled in 1953-54 and water supplies developed from them for

dwellings existing or under construction.

In the Crowsnest Forest a cottage was completed at the Castle (Castlemount) Ranger Station and considerable progress was made in construction of a cottage at Lynx Creek. The double garage at the Livingstone (Gap) Ranger Station was completed.

In the Bow River Forest a ranger's house was built at the new location for the Ghost (Aura) Ranger Station and a second cottage and garage were completed at the Highwood (Sentinel) station.

In the Clearwater Forest double garages were built at the Clearwater and West Brazeau Ranger Stations.

A number of other buildings previously reported as substantially completed, were finished.

C. R. Cornish,
Chief Engineer.

REPORT OF THE CHIEF FORESTER

FOREST PROTECTION

FOREST FIRE PROTECTION The season of 1953 was the most satisfactory of any since this Board came into being, if not since the Forest Reserve was established in 1910. Only six fires were reported and, in the aggregate, less than one acre of young-growth timber was destroyed. No merchantable timber was lost. The cost of suppressing these fires amounted to \$219.40, exclusive of the rangers' salaries.

As usual, personnel of the Forest Reserve assisted in extinguishing fires near, but outside, their territory. However, this involved no out-of-pocket expense to the Board.

Favourable weather conditions were chiefly responsible for the exceptionally fine record, but it would be unfair not to attribute a share of the success to the efficiency of the field staff and to the co-operation of the general public. Late in the autumn a very high fire-hazard existed, yet only one small fire occurred at that time. This is a credit to all concerned because the hunting season was in progress and many more travellers and campers than usual were in the woods.

DEVELOPMENTS IN FIRE CONTROL The programme of constructing new lookouts and rebuilding and modernizing old ones was continued during 1953. The Ironstone Mountain Lookout in the Crowsnest Forest and the Blue Hill Lookout in the Bow River Forest were rebuilt and construction was begun on a new lookout on Raspberry Ridge. Replacement of the Junction

Mountain Lookout was under way when the construction season ended. To date, two lookouts have been erected on new sites, ~~three~~ rebuilt on old sites, and two others are in the course of construction. An additional nine lookouts remain to be erected or replaced to complete the programme, but roads have been built to most of the sites so that construction should be rapid.

Just before the close of the year, work was begun on a 4 1/2-mile electric power line to the Blue Hill Lookout. This will be used to energize an automatic FM radio relay station which will greatly improve communications in the northern portion of the Forest Reserve.

No substantial additions were made to the supply of fire-fighting equipment, but a re-allocation of existing stocks was begun. This will make for a more efficient distribution of supplies in relation to the local available man-power. To meet emergency requirements, additional supplies of tools and equipment must be purchased for storage at selected centres.

The construction of more roads and truck trails as described in the report of the Chief Engineer constitutes an integral part of the overall fire-protection plan.

PROTECTION AGAINST INSECTS AND DISEASE	As in the past years, we have enjoyed the fullest co-operation from the Division of Forest Biology of the Science Service of the Federal Department of Agriculture. Officers of the Division make frequent inspections in the Forest Reserve and keep us informed of the incidence of noxious insects and diseases.
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No major problem exists in the matter of forest pests. A few species of insects have been more than

usually active in small and scattered areas but, for the most part, the damage has been more aesthetic than material. Local outbreaks of the American poplar beetle and the black-headed budworm may be placed in this category. Along the western boundary of the Clearwater Forest there is some evidence that the lodgepole pine needle miner is invading the conservation area from Banff and Jasper National Parks. This is a potential threat, but there is no evidence that a major outbreak is impending.

We had expected a significant attack by the tent caterpillar during 1953. This did not materialize inside the Forest Reserve, although there was a widespread outbreak elsewhere in the Province.

The worst potential threat from tree diseases in the conservation area is mistletoe, particularly lodgepole pine mistletoe. It is present in many localities, though it is confined to comparatively small areas. Fortunately, this parasite does not spread rapidly, or far. Commercial stands are susceptible to control through logging. However, where it occurs in young stands it is costly to eradicate because no commercial products can be salvaged. The disease does not often kill otherwise healthy trees, but does noticeably retard their growth.

Other diseases present in the Forest Reserve are chiefly those associated with a primitive forest, such as root rots and butt rots, which nature uses to keep the forest in a perpetual state of balance between decay and regeneration. The loss is significant in terms of timber production, but of little or no consequence in maintaining good watershed conditions. It can be lessened by more intensive forest management.

RANGE MANAGEMENT

GRAZING During the 1953 season, 20,933 head of cattle were grazed in the Forest Reserve. This represented a slight net increase over the previous year. There was a small decrease in the number of cattle accommodated on the well established grazing allotments in the southern part of the Forest Reserve, but this was more than offset by greater use of some of the under-developed allotments north of the Bow River. In addition to the cattle, 1,150 sheep and 288 horses were grazed under permit, bringing the total number of domestic animals to 22,376 head as compared with 22,391 in 1952. The number of grazing permits issued was 280 as against 283 in the previous year.

The excessive population of wild horses is a problem which is continuing to receive the attention of the field staff. Round-ups of these animals were conducted in a few localities with moderate success, but stronger measures to bring these unwelcome residents in the Forest Reserve under control are needed to prevent serious damage to the range and consequently to watershed conditions.

RANGE Generally speaking, the condition of the
CONDITION range has been improving in recent years. There is no doubt that part of this improvement has been brought about by more efficient handling of cattle in the Forest Reserve. In part, however, it is the result of a succession of favourable growing seasons. In cases where needed improvement was not evident or where improvement was due chiefly to the weather, better management methods have been recommended to the Forest Officers concerned.

Now that the main survey of range resources has been completed, attention is being given to methods of keeping a continuous record of range condition. To this end about one hundred permanent transects have been established in typical grazing allotments south of the Bow River. A precise measurement and record of the plant cover along each of these transects will be made at least once every three years, and photographs will be taken at the time of each re-measurement. The results of the re-assessment of each transect will be compared with previous records to establish the trend of condition. The programme will be extended northward next season.

No detailed survey of the condition of elk winter range in the extreme south of the Forest Reserve was made this year. Nevertheless, general observations lead to the impression that the land continues to deteriorate. The Alberta Department of Lands and Forests has had a game biologist studying conditions in the area, and it is confidently expected that changes recently made in game regulations will at least tend to ameliorate the situation.

March 31st, 1954, 93 License Timber Berths are active as compared with 69 on the corresponding date in the previous year. This net increase was occasioned by the issuance of 33 new licenses during the year, at the completion of nine old ones. Eleven of the active timber berths involved the salvage of fire-killed trees, while the balance permitted cutting of mature green timber.

The total output of timber products in the Forest Reserve decreased only very slightly from that of the previous year. The figure for 1953-54 was 10.5 million cubic feet as compared to a total of 10.7 million cubic feet the year before. The production of lumber, however, amounted to over 46 1/2 million feet board

FOREST OPERATIONS

LOGGING

Despite a decline in the price of lumber no lessening of interest in lumber can be detected in the production figures for this area during the fiscal year 1953-54. As a matter of fact the Board dealt with a considerably greater number of applications for timber berths than in any previous year -- forty in all. Of this number, 36 were approved, although in many cases the applications and conditions of sale were substantially modified. One of the remaining four applications was withdrawn and the other three were not approved because the removal of the timber at this time would not have been in the interests of good management. The quantity of timber involved in the approved applications amounted to about 80 million feet board measure. All but about five million of this had been sold by the close of the year and will be cut during the next three to ten years depending upon the terms of the individual sales.

On March 31st, 1954, 93 License Timber Berths were active as compared with 69 on the corresponding date in the previous year. This net increase was occasioned by the issuance of 33 new licenses during the year, and the completion of nine old ones. Eleven of the active timber berths involved the salvage of fire-killed trees, while the balance permitted cutting of mature green timber.

The total output of timber products in the Forest Reserve decreased only very slightly from that of the previous year. The figure for 1953-54 was 10.5 million cubic feet as compared to a total of 10.7 million cubic feet the year before. The production of lumber, ties and lath amounted to over 46 1/2 million feet board

FOREST OPERATIONS

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The total output of timber products in the Forest Service decreased only very slightly from that of the previous year. The figure for 1953-54 was 10.5 million cubic feet as compared to a total of 10.7 million cubic feet the year before. The production of lumber, the most important product, amounted to over 4 1/2 million feet board

measure, which is an increase of about 5 1/2 per cent over the previous annual figure. However, this increase was more than offset by a decline in the production of round timber in the form of poles, posts, mine timber, rails, pulpwood, etc., totalling 1.16 million cubic feet this year as against 3.01 million cubic feet in the previous one. This was chiefly the result of a sharp falling off in the demand for mine timbers. This in turn was reflected in a reduction in the quantity and the proportion of fire-killed timber salvaged which this year constituted only 11 per cent of the total production as compared to 17 per cent in 1952-53.

The total annual cut in the conservation area continues to be far below its sustained-yield capacity, but the rate at which over-mature timber is being removed is fairly satisfactory, in view of its distribution.

OTHER COMMERCIAL ACTIVITIES

The oil and natural gas industry continues to take a great interest in the conservation area. Reservations for exploration purposes now

blanket the greater part of the Forest Reserve north of the Bow River and are also extensive to the south of it. The number of oil and gas leases continues to increase and wells are being, or have been, drilled at several points. No major source of oil or gas has yet been discovered in the area however.

By the close of the year, activity in coal mining was declining seriously with little prospect of it regaining its former importance in the near future.

FOREST INVENTORY

Field work on an inventory of the forest resources was continued on a

HYDROLOGY

somewhat reduced scale during the summer of 1953. Information on about 220 sample plots was recorded, bringing the total number to almost 2,400. It may be necessary to examine a few more plots in selected forest types during the summer of 1954, but, in the main, the survey work is completed.

Work on the compilation of the volumetric inventory was well advanced by the close of the year and many of the necessary statistical analyses to test the adequacy of sampling had been completed. However, much work remains to be done in the way of interpretation of aerial photographs and the calculation of the areas of the various forest types. It is unlikely, therefore, that the final figures will be available before the winter of 1954-55.

Particularly whether it falls as snow or rain, has a very important influence on stream flow. Then again some storms strike hardest at high elevations, while others are concentrated in the foothills. Some come at a time when the vegetation is dormant, others during the growing season. An individual storm may do damage to one portion of the Forest Reserve by contributing to flood conditions and at the same time other portions may benefit by additions of usable water in stream-flow. All these factors have a strong bearing on watershed management.

Through soil surveys we have also learned more about the potential water-storage capacity of the area. This in turn provides information useful in determining the methods of management of the vegetation to secure the maximum temporary storage of moisture.

HYDROLOGY

COLLECTION OF DATA

The task of learning more about the relationship between precipitation and stream-flow within the conservation area is making satisfactory progress. Eighty-seven storage precipitation gauges have been set up throughout the Forest Reserve at various elevations of from 4,200 feet to about 8,000 feet on slopes with different aspects. Along with this, a detailed study has been made of the synoptic weather charts for the past several years. From the information thus gained we are beginning to discern the pattern of the distribution of precipitation, both as to time and place, in relation to the major air-mass movements of the region.

The season at which precipitation falls, and more particularly whether it falls as snow or rain, has a very important influence on stream flow. Then again some storms strike hardest at high elevations, while others are concentrated in the foothills. Some come at a time when the vegetation is dormant, others during the growing season. An individual storm may do damage to one portion of the Forest Reserve by contributing to flood conditions and at the same time other portions may benefit by additions of usable water in stream-flow. All these factors have a strong bearing on watershed management.

Through soil surveys we have also learned more about the potential water-storage capacity of the area. This in turn provides information useful in determining the methods of management of the vegetation to secure the maximum temporary storage of moisture.

As additional records on the flow of the more important streams leaving the conservation area, are accumulated, we are understanding more about the complex relationships between precipitation, evapo-transpiration, water storage and stream-flow. There is nothing spectacularly revealing about all these studies. They require much careful analysis and interpretation but, in the long run, they will constitute the cornerstone of watershed management. Only when all these facts are known can the vegetative cover be manipulated by management to promote the optimum flow of water in the streams. Eventually each area of grass land or timber should be managed in relation to the soil on which it grows and the local climatic conditions to which it is exposed.

During the autumn of 1953 and again at the close of the fiscal year, some changes were made in the internal division of the conservation area to improve the administration. For the most part the justification for these changes was to be found in the new road system which had so improved communications that the former administrative sub-divisions were no longer the most effective which could be devised.

As has been the case for several years past, the Alberta Forest Service conducted a ten-week course of instruction for Forest Rangers. Six selected members of the East Slope staff attended this school and senior administrative officers of the Forest Reserve and members of the Board's staff assisted in giving instruction.

E. S. Fellows,
Chief Forester.

ADMINISTRATION

Mr. J. P. Alexander, the Senior Superintendent of the Forest Reserve, and the Liaison Officer between the Alberta Forest Service and the Board, retired during the summer of 1953. His duties were assumed by Mr. L. R. West, the Superintendent of the Bow River Forest. It is with the deepest regret that I must record the death of Mr. West in October 1953. He has not been replaced in the office of Senior Superintendent, but he has been succeeded as Superintendent of the Bow River Forest by Mr. S. R. Hughes, his former assistant. Mr. G. A. Longworth has been appointed Assistant Superintendent of the Bow River Forest. There have been no other changes among the senior personnel of the Alberta Forest Service on the East Slope.

During the summer of 1953 and again at the close of the fiscal year, some changes were made in the internal division of the conservation area to improve the administration. For the most part the justification for these changes was to be found in the new road system which had so improved communications that the former administrative sub-divisions were no longer the most effective which could be devised.

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E. S. Fellows,
Chief Forester.

REPORT OF THE SECRETARY

Mr. J. D. Middlemass, Secretary to the Board since its inception resigned September 30th, 1953. Mr. J. M. Marshall formerly administrative officer, Forestry Branch, Department of Resources and Development, Ottawa, was appointed to the position of Secretary as of September 1st, 1953.

MINUTES OF MEETINGS Minutes of meetings of the Board, nine in number, held in Calgary, Edmonton and Ottawa, were kept and transmitted to the respective Ministers.

FINANCE - The financial procedure remained
ACCOUNTING substantially the same as in former years with three main revenue accounts being operated, comprising Capital, Maintenance Administration and Maintenance Operating.

Two bank accounts are maintained by the Board with a chartered bank in Calgary, one for capital expenditure and the other for maintenance administration expenditure. As required by the Act interim and balance sheet audits were made periodically by representatives of the Auditor General.

Total capital expenditure for the year amounted to \$799,012.00 bringing the cumulative total of expenditure during the six years of the Board's operation to \$5,682,296.73 leaving a sum of \$617,703.27 of the original \$6,300,000.00 appropriation available for the construction programme planned for the final capital year, ending March 31st, 1955.

Maintenance disbursements by the Board during the year amounted to \$57,804.84, and the Province disbursed \$261,430.22 to cover operating expenses of the Alberta Forest Service within the area. This made a combined total on maintenance expenditures of \$319,235.06 assumed wholly by the Province of Alberta.

The accompanying certified statement of Assets and Liabilities together with subsidiary schedules reflects the financial operation of the Board for the six years ending March 31st, 1954.

REVENUE Revenue from surface rights derived by the Alberta Department of Lands and Forests in the East Slope area amounted to \$353,579.00 for the year under review which was more than adequate to meet total maintenance expenditures reported above.

CURRENT PRO-GRAMME AND ESTIMATES Expenditures from capital account fell somewhat below the amount estimated the preceding fall due to the fact that construction in the field did not keep up to the high target set for the year. A revised programme to include the carry-over of work and new road and building projects has been formulated based on capital available for the final year.

Estimates in the maintenance field for the fiscal year 1954-55 as approved by the Board were submitted to the Province of Alberta totalling \$372,500.00 of which \$72,500.00 was allocated for administration expenditure by the Board and \$300,000.00 for the Alberta Forest Service Maintenance Operating account.

WORKMEN'S COMPENSATION The deposit of \$10,000.00 with the Alberta Workmen's Compensation

Board remained unchanged. Claims during the year incurred by the Board staff amounted to \$422.45. No further deposits have been made to the contingency reserve set up in preceding years based on a percentage of payroll, as in the opinion of the Board the amount on deposit totalling \$9,273.13 is considered adequate to meet anticipated requirements.

ROUTINE With the co-operation of the Auditor
ADMINISTRA- General's representative the Board's
TION accounting procedure was revised by
 the installation of a modern synoptic
system which **experience** during the last six months of
the fiscal year has proven to be quite adequate to meet
the requirements essential to sound management and
operation.

Audited quarterly claims for capital expenditure by the Province, as approved by the Board, were cleared to the Department of Finance in Ottawa for payment in accordance with established procedure. These payments were effected promptly.

The co-operation and assistance rendered the Board staff by officials of the governments of Canada and Alberta with whom we have had working relations is gratefully acknowledged.

Again it is gratifying to report that the staff of the Board has continued to serve with loyalty and efficiency.

J. M. Marshall
Secretary.

EASTERN ROCKY MOUNTAIN FOREST CONSERVATION BOARD

(Established under the Eastern Rocky Mountain Forest Conservation Act, and Operative Agreement between the Government of Canada and the Province of Alberta)

Statement of Assets and Liabilities

As at December 31, 1954

Assets

Cash on hand and in bank
Inventories, at cost:
Loose tools and equipment
Construction materials and supplies
212,571

Contributors' Deposits
Deposits and prepaid expenses:
Prepaid unemployment insurance stamps
13,388

Fixed Assets:
Capital improvements and works:
Schedule I
Schedule II
Schedule III
Schedule IV
Provision for depreciation
351,228

2,309,422
2,300,000

Cash on hand and in bank

Contributors' Deposits

Deposits and prepaid expenses:

Prepaid unemployment insurance stamps

13,388

Fixed Assets:

Capital improvements and works:

Schedule I

Schedule II

Schedule III

Schedule IV

Provision for depreciation

351,228

2,309,422

Certified Correct

J. M. Marshall,
Secretary.

Approved on behalf of the Board

Howard Kennedy,

EASTERN ROCKIES FOREST CONSERVATION BOARD

(Established under the Eastern Rocky Mountain Forest Conservation Act, and Operating under Agreement between the Government of Canada and the Province of Alberta)

Statement of Assets and Liabilities

as at March 31st, 1954

Assets

Cash on Hand and in Bank		\$	29,264	
Inventories, at cost:				
Loose tools and small equipment	\$	18,607		
Construction materials and supplies		<u>29,123</u>		
				47,730
Contractors' Deposits				19,183
Deposits and Prepaid Expenses:				
Deposits		13,588		
Prepaid unemployment insurance stamps		<u>127</u>		
				13,715
Fixed Assets:				
Capital improvements and works, per Schedule I		5,209,425		
Movable equipment, etc., per Schedule IV	\$	548,466		
Less: Provision for de- preciation		<u>367,268</u>		
			<u>181,198</u>	
				<u>5,390,623</u>
				<u>5,500,515</u>

Note: ^xThe Schedule to the Act, Section 20, provides that, upon termination of the agreement between the Governments of Canada and of the Province, which is for a period of not less than twenty-five years ended 1973, (a) all improvements or works resulting from the carrying out of the programmes of the Board shall belong to the Province, (b) all other property acquired by the Board shall belong to the Government of Canada.

Certified Correct

J. M. Marshall,
Secretary.

Approved on behalf of the Board

Howard Kennedy,
Chairman.

Liabilities and Proprietary Equity

Liabilities

Government of Canada:

Advances provided under authority of -
Section 8(1) of the Act, for capital
expenditures

\$ 814,924

Less: Disbursements, per Schedule I

799,012

\$ 15,912

Province of Alberta:

Advances for annual maintenance expenses
Less: Expenditures, per Schedule II

323,314

319,235

4,079

Contractors' Deposits (contra)

19,183

Reserves for:

Claims for workmen's compensation
Employees' retirement fund

9,273

3,588

12,861

Deferred Liability, for equipment taken over
from the Province, to be discharged on
termination of the agreement

25,480

Proprietary Equity^x

Balance as at March 31st, 1954, per Schedule III

5,423,000

5,500,515

The accounts of the Eastern Rockies Forest Conservation Board for the fiscal year ended March 31st, 1954 have been examined under my direction to the extent considered appropriate and all the information and explanations which have been required have been received. In my opinion, the above Statement of Assets and Liabilities is properly drawn up so as to exhibit a true and correct view of the Board's affairs as at March 31st, 1954, according to the best of my information and the explanations given to me and as shown by the books of the Board.

Watson Sellar,
Auditor General of Canada.

Statement of Capital Disbursements, from inception to March 31st, 1954, from funds provided by the Government of Canada (as authorized under Section 8(1) of the Act), for the location and construction of forest improvements, the making of a forest inventory, re-forestation, and such other works and services as the Board may consider necessary in that area of the East Slope of the Rocky Mountains forming part of the watershed of the Saskatchewan River, as more definitely described in the Appendix to the Act. The total expenditure is not to exceed \$6,300,000 during the seven years ended March 31st, 1955

	<u>1953 - 54</u>	<u>To March 31, 1954</u>
Improvements and Works:		
New Construction -		
Roads and trails	\$ 770,783	\$ 4,813,389
Buildings	15,993	140,718
Total - New Construction	<u>786,776</u>	<u>4,954,107</u>
Other Expenses -		
Range and watershed survey	22,033	116,224
Radio network	926	50,074
Camping grounds	2,758	34,351
Stream gauging	-	18,091
Visibility mapping	1,858	8,983
Water resources survey	-	6,685
Boundary survey	-	5,078
Film production	-	2,465
Stock gates and entrance gates	313 cr.	1,853
Hay meadows	-	1,700
Miscellaneous improvements	2,943	4,530
Radio survey	-	1,465
Forest signs	74	1,206
Basic survey and mapping	386	1,449
Telephone lines	115	1,164
Provision for workmen's compensation reserve	4,189 cr.	-
Provision for retirement fund	667 cr.	-
Refund of interest on retirement fund	14	-
Total - Improvements and Works	<u>812,714</u>	<u>5,209,425</u>
Movable Equipment:		
Tractors and heavy equipment	284	166,215
Cars and trucks	255	81,862
Radio equipment	6,008	70,762
Forestry equipment	3,159	59,928
Camp and miscellaneous equipment	3,677	51,269
Office furniture and equipment	-	2,827
Livestock	-	80
	<u>13,383</u>	<u>432,943</u>
Additions to (reductions in) Stores and other Inventories:		
Construction materials and supplies	28,270 cr.	29,123
Loose tools and small equipment	1,383	10,722
	<u>26,887 cr.</u>	<u>39,845</u>
Other Disbursements:		
Prepayment of unemployment insurance stamps	84	84
Prepaid expenses - workmen's compensation	282 cr.	-
	<u>198 cr.</u>	<u>84</u>
Total Disbursements	<u>799,012</u>	<u>5,682,297</u>

Statement of Expenditures for Forest Maintenance, Protection and Management
for the year ended March 31st, 1954

	<u>Total</u>	<u>Expended by</u>	
		<u>The Board</u>	<u>The Province</u>
Maintenance Expenses:			
Salaries	\$ 213,196	\$ 43,884	\$ 169,312
Wages	16,965	-	16,965
Unemployment insurance	64	64	-
Workmen's compensation claims	1,055	76	979
Provision for retirement annuity plan	2,045	2,045	-
Travelling	9,220	1,914	7,306
Uniforms for forest rangers	4,681	-	4,681
Rentals	3,709	3,645	64
Heat, light and power	2,630	-	2,630
Telegrams and telephones	1,236	521	715
Insurance (other than auto)	134	134	-
Printing, stationery and office supplies	2,026	1,278	748
Postage	870	146	724
Freight, express and cartage	717	14	703
Camp supplies	679	-	679
Repairs and replacements (other than motor vehicles)	18,026	37	17,989
Motor vehicle expense	19,708	2,371	17,337
Miscellaneous supplies and expenses	3,293	884	2,409
Fire suppression (wages)	282	-	282
	<u>300,536</u>	<u>57,013</u>	<u>243,523</u>
Fixed Assets - Movable Equipment:			
Cars and trucks	17,820	367	17,453
Forestry equipment	121	121	-
Camp and miscellaneous equipment	213	16	197
Office furniture and equipment	69	69	-
	<u>18,223</u>	<u>573</u>	<u>17,650</u>
Other Expenditures:			
Loose tools and small equipment	432	176	256
Prepaid unemployment insurance stamps	44	44	-
	<u>476</u>	<u>220</u>	<u>256</u>
Total Expenditures*	<u>319,235</u>	<u>57,806</u>	<u>261,429</u>

*Contributed by the Province of Alberta in accordance with Section 2(a)(ii) of the Memorandum of Agreement, dated June 17th, 1953, between the Government of Canada and the Government of Alberta as set forth in the Schedule to Chapter 41 of the Statutes of 1952, amending the Eastern Rocky Mountain Forest Conservation Act.

Note: By Section 1(5) of the Schedule to the Act, the remuneration and expenses of the Members of the Board are paid by the Government by whom each is respectively appointed; such expenses are, therefore, not included above.

Schedule III

Statement of Proprietary Equity
for the year ended March 31st, 1954

Balance, April 1st, 1953			\$ 4,698,846
Increments on Capital Account:			
Disbursements per Schedule I	\$ 799,012		
Deduct: Write-offs during the			
year in respect of items			
retired, destroyed or lost	\$ 3,769		
Less: Revenues from sales and			
allowances for trade-ins on			
purchases	<u>3,426</u>		
		<u>343</u>	
			798,669
Increments on Maintenance Account:			
Disbursements per Schedule II -			
Movable equipment		18,223	
Other expenditures		<u>476</u>	
		18,699	
Deduct: Write-offs during the			
year in respect of items			
retired, destroyed or lost	3,894		
Less: Allowances for trade-in on			
purchases	<u>2,226</u>		
		<u>1,668</u>	
			<u>17,031</u>
			5,514,546
Less: Reduction in prepaid expenses			<u>1,119</u>
			5,513,427
Deduct: Provision for depreciation of fixed			
assets for the year			<u>90,427</u>
			<u>5,423,000</u>

Fixed Assets - Movable Equipment
as at March 31st, 1954

	<u>Book Value - cost, as at March 31st, 1954</u>		<u>Provision for Depreciation to March 31st, 1954</u>	<u>Depreciated Value</u>
	<u>For maintenance purposes</u>	<u>For capital purposes</u>	<u>Rate %</u>	<u>Amount</u>
Movable Equipment -				
Tractors and heavy equipment	\$ 243	\$ 165,942	20	\$ 161,650
Cars and trucks	95,515	45,683	20	100,176
Forestry equipment	11,312	59,790	10	32,755
*Equipment taken over from the Province	-	22,304	-	-
Camp and miscellaneous equipment	8,792	48,760	10	22,510
Radio equipment	-	70,526	20	39,433
Office furniture and equipment	7,696	2,827	10	5,480
Engineering equipment	8,409	-	10	4,880
Livestock	-	80	10	32
Columbia Ice Fields Gauge House	587	-	10	352
Totals	<u>132,554</u>	<u>415,912</u>		<u>367,268</u>
				<u>181,198</u>

Note: *Entered at depreciated value as at April 1st, 1948.

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